


Notice of Allowability	Application No.	Applicant(s)	
	10/636,180	HU, Y. JEFF	
	Examiner	Art Unit	
David Nhu	2818		

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address--
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/2/04.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☒ The drawings filed on 07 August 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/163,289.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |



REASONS FOR ALLOWANCE

1. Claims 1-24 are allowed.
2. The following is an examiner's statement of reasons for allowance: None of the references of record teaches or suggests as cited in claims 1, 11, 15: PVD forming a refractory metal silicide first film above conductive plug; forming a refractory metal silicide nitride second film above the refractory metal silicide first film; and PVD forming a refractory metal third film above the refractory metal silicide nitride second film (as cited in claim 1); PVD forming a refractory metal silicide first film above a conductive plug, wherein the conductive plug includes a characteristic dimension, wherein the refractory metal silicide first film is selected from $Msix$, wherein M is selected from Ta, TaW..., and combination thereof, wherein $0 < x \leq 1.8$; reactive PVD forming an amorphous refractory metal silicide nitride second film above the refractory metal silicide first film, wherein the amorphous refractory metal silicide nitride second film is selected from $TaNySix$,, and combination thereof, wherein $0 < x \leq 2.5$, and wherein $0 < y < 1$; and PVD forming a refractory metal third film above the amorphous refractory metal silicide nitride second film under conditions to cause an average grain size therein, wherein the average gain size is in a range from about one-tenth the characteristic dimension to larger than the conductive plug characteristic dimension (as cited in claim 11); PVD forming a refractory metal silicide first film above a conductive plug; PVD forming an titanium nitride second film above the refractory metal silicide first film (as cited in claim 15).
3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the

Art Unit: 2818

issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

CONCLUSION

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Hu (6,614,116 B1): Buried Digit Line Stack and Process for Making Same.

5. Any inquiry concerning this communication on earlier communications from the examiner should be directed to David Nhu, (571)279-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM.

The examiner's supervisor, David Nelms can be reached on (571)272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

David Nhu 

June 12, 2004



DAVID NHU
PRIMARY EXAMINER